


US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified)		Atty. Docket No.: 42P16768		Application No.: ***** 10/609443		
		Applicant: Hok-Kin Choi, et al.				
		Filing Date: Concurrently Herewith 6-26-03				
US Patent Documents						
Examiner's Initials	Date	Document Number	Name	Class	Sub- Class	Filing Date
OK	03/04/86	4,574,094	DeLuca et al.	205	126	05/21/84
OK	03/04/86	4,574,095	Baum et al.	427	584	09/19/84
OK	12/06/88	4,789,648	Chow et al.	438	633	10/28/85
OK	01/16/90	4,894,260	Kumasaka et al.	427	241	09/19/88
OK	01/15/91	4,985,750	Hoshino	257	751	09/17/87
OK	09/29/92	5,151,168	Gilton, et al.	205	123	09/24/90
OK	08/31/93	5,240,497	Shacham et al.	106	1.26	10/08/91
OK	03/18/97	5,612,254	Mu et al.	438	634	06/29/92
OK	12/09/97	5,695,810	Dubin et al.	427	96	11/20/96
OK	04/14/98	5,739,579	Chiang et al.	257	635	09/10/96
OK	04/06/99	5,891,513	Dubin et al.	438	633	01/16/96
OK	11/28/00	6,153,935	Edelstein et al.	257	773	09/30/99
OK	01/02/01	6,169,024 B1	Hussein	438	627	09/30/98
OK	01/06/01	6,174,812	Hsiung et al.	438	687	06/08/99
OK	03/06/01	6,197,688	Simpson	438	678	02/12/98
OK	07/10/01	6,258,707 B1	Uzoh	438	618	01/07/99
OK	10/18/01	2,001,030,366	Nakano et al.	257	753	03/07/01
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OK	02/26/02	6,350,687 B1	Avazino et al.	438	687	03/18/99
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Foreign Patent Documents						
Examiner's Initials	Date	Document Number	Country	Class	Sub- Class	Translation
OK	11/25/87	62-270778	Japan	—	—	Yes
OK	07/26/00	11-288940	Japan	—	—	Yes
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)						
Examiner <i>Helene Korman</i>			Date Considered 1-12-05			


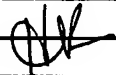
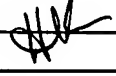
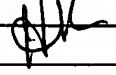
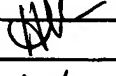
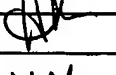
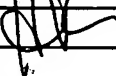
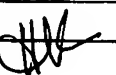
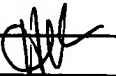

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant

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US Patent Documents						
Examiner's Initials	Date	Document Number	Name	Class	Sub- Class	Filing Date
[Signature]	12/08/92	5,169,680	Ting et al.	438	629	
[Signature]	02/02/93	5,183,795	Ting et al.	438	618	
[Signature]	10/20/98	5,824,599	Shacham-Diamand et al.	438	678	
[Signature]	11/03/98	5,830,805	Shacham-Diamand et al.	438	678	
[Signature]	04/11/00	6,048,445	Brain	205	118	
[Signature]	03/19/02	6,359,328	Dubin	257	622	
Foreign Patent Documents						
Examiner's Initials	Date	Document Number	Country	Class	Sub- Class	Translation
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)						
Examiner	[Signature: Helene Klemans]		Date Considered 1-12-05			

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US Patent Documents							
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Examiner's Initials		Date	Document Number	Country	Class	Sub- Class	Translation
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)							
JLK		"Thick Selective Electroless-Plated Cobalt-Nickel Alloy Contacts to CoSi ₂ "; G.E. Georgiou, F. et al. J. Electrochem. Soc., Vol. 138, No. 7, July 1991, pgs. 2061-2069. © The Electrochemical Society, Inc.					
JLK		"Encapsulated Copper Interconnection Devices Using Sidewalls Barriers", Donald S. Gardner et al.; VMIC Conference; June 11-12, 1991, pgs. 99-108.					
JLK		"Planar Copper-Polyimide Back End of the Line Interconnections for ULSI Devices"; B. Luther et al. VMIC Conference; June 8-9, 1993, pgs. 15-21.					
JLK		"Electroless plating of copper at a low pH level", R. Jagannathan et al.: IBM J. Res. Develop. Vol. 37. No. 2: March 1993, pgs. 117-123.					
JLK		"Selective Electroless Metal Deposition for Integrated Circuit Fabrication", Chiu H. Ting et al.; J. Electrochem Soc. Vol. 136, No. 2; Feb. 1989, pgs. 456-461. The Electrochemical Society, Inc.					
JLK		"Selective Electroless Metal Deposition for Via Hole Filling in VLSI Multilevel Interconnection Structures"; Chiu H. Ting et al.; J. Electrochem Soc. Vol. 136, No. 2; Feb. 1989, pgs. 462-465. © The Electrochemical Society, Inc.					
JLK		"Pd/Si plasma immersion ion implantation for selective electroless copper plating on SiO ₂ "; Kiang et al.; Applied Phys. Lett. 60 (22): June 1, 1992, pgs. 2767-2769. The American Institute of Physics.					
JLK		"Selective electroless Ni deposition on a TiW underlayer for integrated circuit fabrication"; V.M. Dubin et al.; Thin Solid Films, 226 (1993), pgs. 87-93, no month.					
JLK		"Copper Corrosion With and Without Inhibitors"; V. Brusic et al.; J. Electrochem. Soc. Vol. 138, No. 8, August 1991, pgs. 2253-2259. © The Electrochemical Society, Inc.					
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Examiner's Initials	Date	Document Number	Country	Class	Sub- Class	Translation
	11/15/2001	PCT/US 01/44791	PCT Search Report	—	—	
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)						
		"100 nm wide copper lines made by selective electroless deposition"; Yosi Shacham-Diamand; J. Micromech. Microeng. 1 (1991). pgs.66-732, <i>no month</i> .				
		"A Half-Micron Pitch Cu Interconnection Technology"; Kazuyoshi Ueno et al.; 1995 Symposium on VSLI Technology Digest of Technical Papers. pgs. 27-28, <i>no month</i> .				
		"Electroless Metal Deposition From Aqueous Solutions", V.V. Sviridov; Minsk Bielorussian State University; 1987. pgs. 60-85, <i>no month</i> .				
		"Passivation of Copper by Silicide Formation In Dilute Silane", S. Hymes, et al. Conf. Proc. USLI-VII, Materials Research Society ; 1992, pgs. 425-431, <i>no month</i> .				
		"Copper Interconnection with Tungsten Cladding for ULSI"; J.S.H. Cho et al.; ULSI Tech. Symp; 1991; pp. 39-40, <i>no month</i> .				
		C.J. Sambucetti et al. "Electroless Deposition of Thin Alloy Layers for Metal Passivation and Solder Barriers. August 31, 1997, Electromechanical Society Proceedings, vol. 97-27, pages 336-345, XP001058382.				
		S.D. Lopatin et al., "Thin Electroless Barrier for Copper Films", Proceedings of the SPIE, SPIE Bellingham, VA, Vol. 3508, 9/23/1998, pages 65-77, XP001058166.				
		H. Honma and M. Noguchi, "Electroless Cobalt Bath-Life Extension" December 1990. Pages 67 - 70.				
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US Patent Documents							
Examiner's Initials		Date	Document Number	Name	Class	Sub-Class	Filing Date
Foreign Patent Documents							
Examiner's Initials		Date	Document Number	Country	Class	Sub-Class	Translation
		7/26/2000	EP 1022770A2	European	—	—	
		07/26/00	EP 1022770A3	European	—	—	
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		"Electroless Cu for VLSI"; James S.H. Cho et al.; MRS Bulletin/ June 1993, pgs. 31-38.					
		"Electroless Copper Deposition on Metals and Metal Silicides"; Cecilia Y. Mak; MRS Bulletin/August 1994, pgs. 55-62.					
		"Selective and Blanket Electroless Cu Plating Initiated By Contact Displacement For Deep Submicron Via Contact Filling"; Dubin et al.; VMIC Conf.; June 27-29, 1995, pgs. 315-321.					
		"Q35 um Cu-Filled Via Holes By Blanket Deposited Electroless Copper On Sputtered Seed Layer"; Yosi Shacham-Diamond et al.; VMIC Conf. ; June 27-29, 1995, pgs. 334-336.					
		"Barriers Against Copper Diffusion into Silicon and Drift Through Silicon Dioxide"; Shi-Qing Wang; MRS Bulletin/August 1994, pgs. 30-40.					
		"Inlaid Copper Multilevel Interconnections Using Planarization by Chemical-Mechanical Polishing"; S.P. Murarka et al.; MRS Bulletin/June 1993, pgs. 46-51.					
		"Electrochemically Deposited Diffusion Barriers"; M. Paunovic; et al. J. Electrochem, Soc., Vol. 141, No.7; July 1994, pgs. 1843-1850. © The Electrochemical Society, Inc.					
		"Electroless Copper Deposition For Multilevel Metallization"; S.Simon Wong et al.; Mat. Res. Soc. Symp. Proc. Vol. 203; 1991 Materials Research Society, pgs. 347-356. no month.					
Examiner <i>Helene Klemans</i>				Date Considered 1-12-05			

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Complete If Known

Attorney Docket Number	42P16768
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Based on PTO/SB/08B (08-03) as modified by Blakely, Solokoff, Taylor & Zalman (wtr) 08/11/2003.
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